

# Potential Sources of Exposure at Recreational Facilities

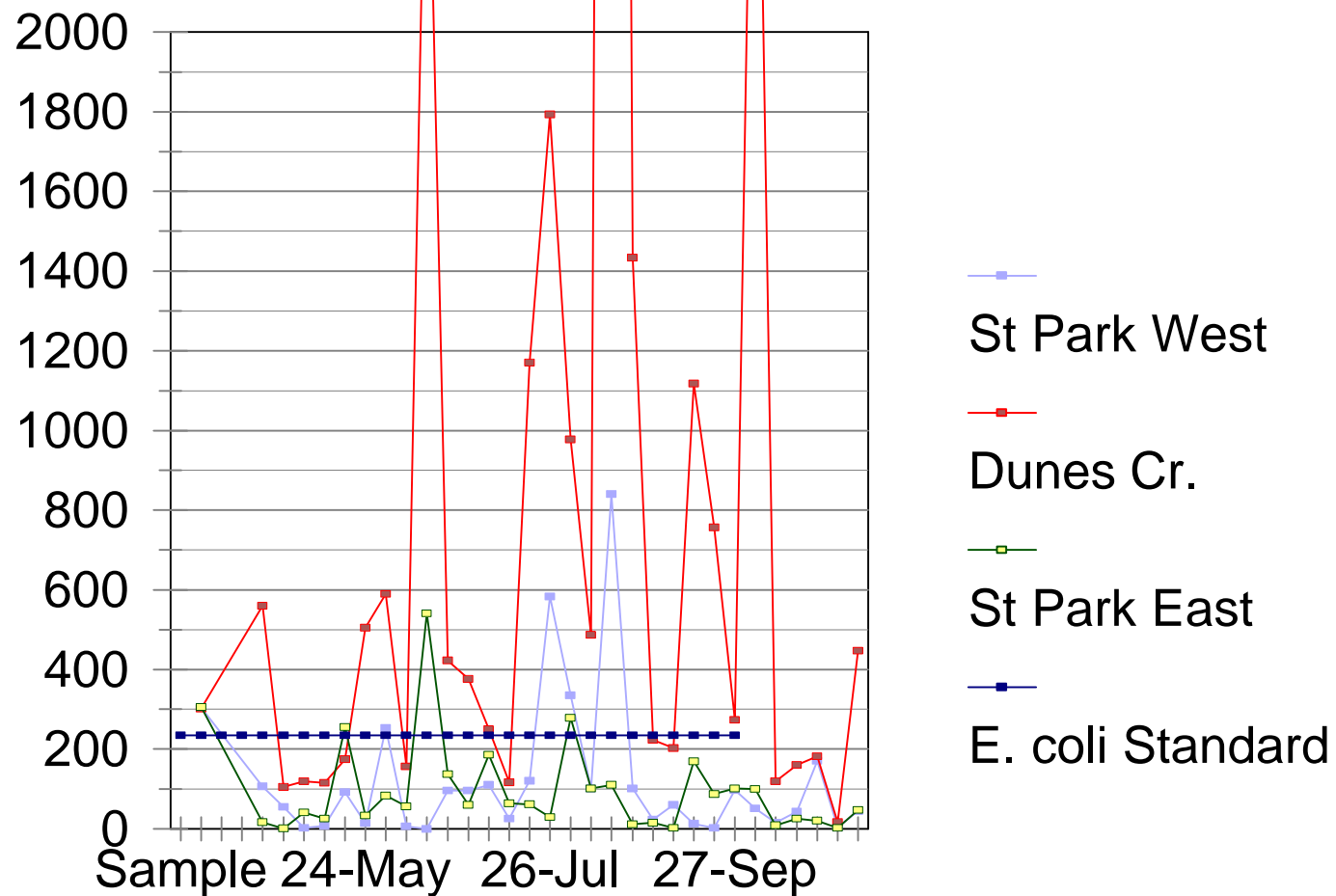
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- P Storm Water
- P Waste Water
- P Privies
- P Combined Sewer Overflows
- P Failed Septic Systems
- P Wildlife
- P Water Supply Facilities

# Indiana Dunes State Park



# Dunes Creek



# Waste Water

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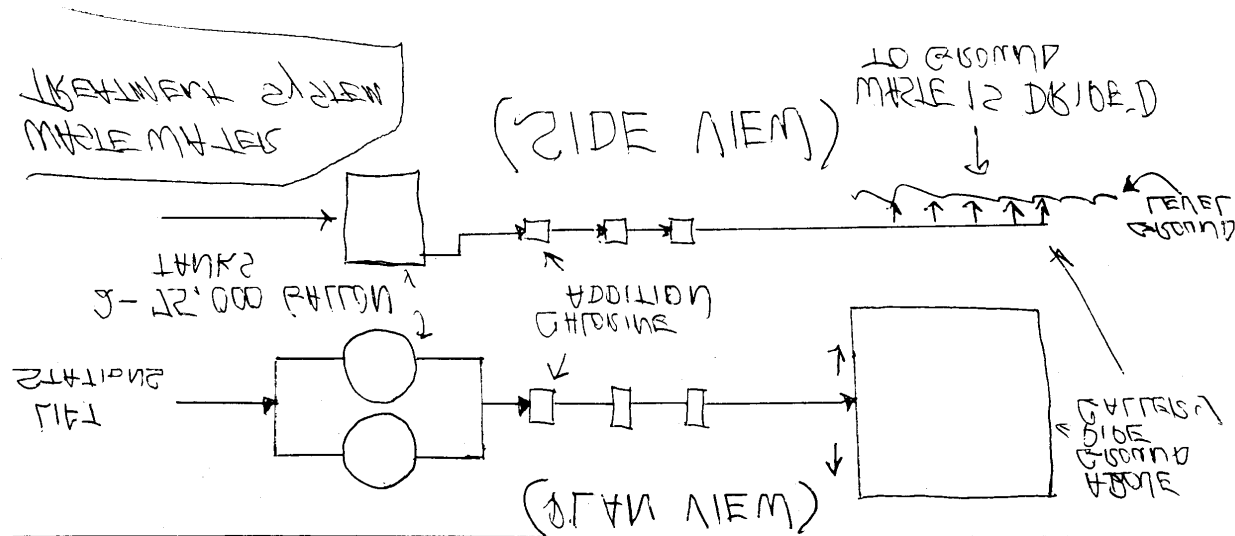


# Waste Water Treatment

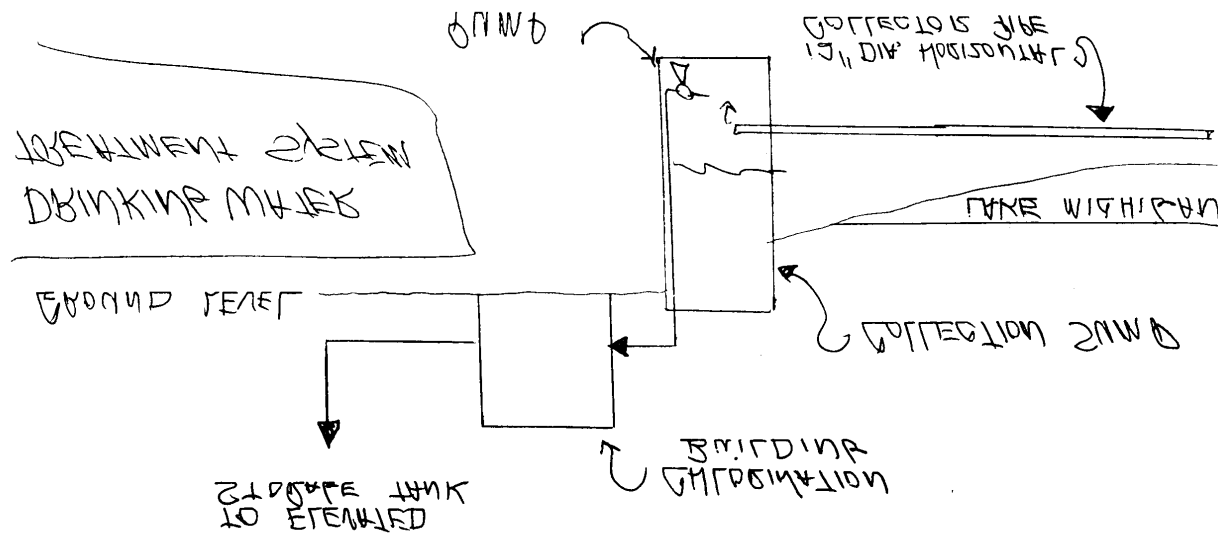
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# SCHEMATIC B

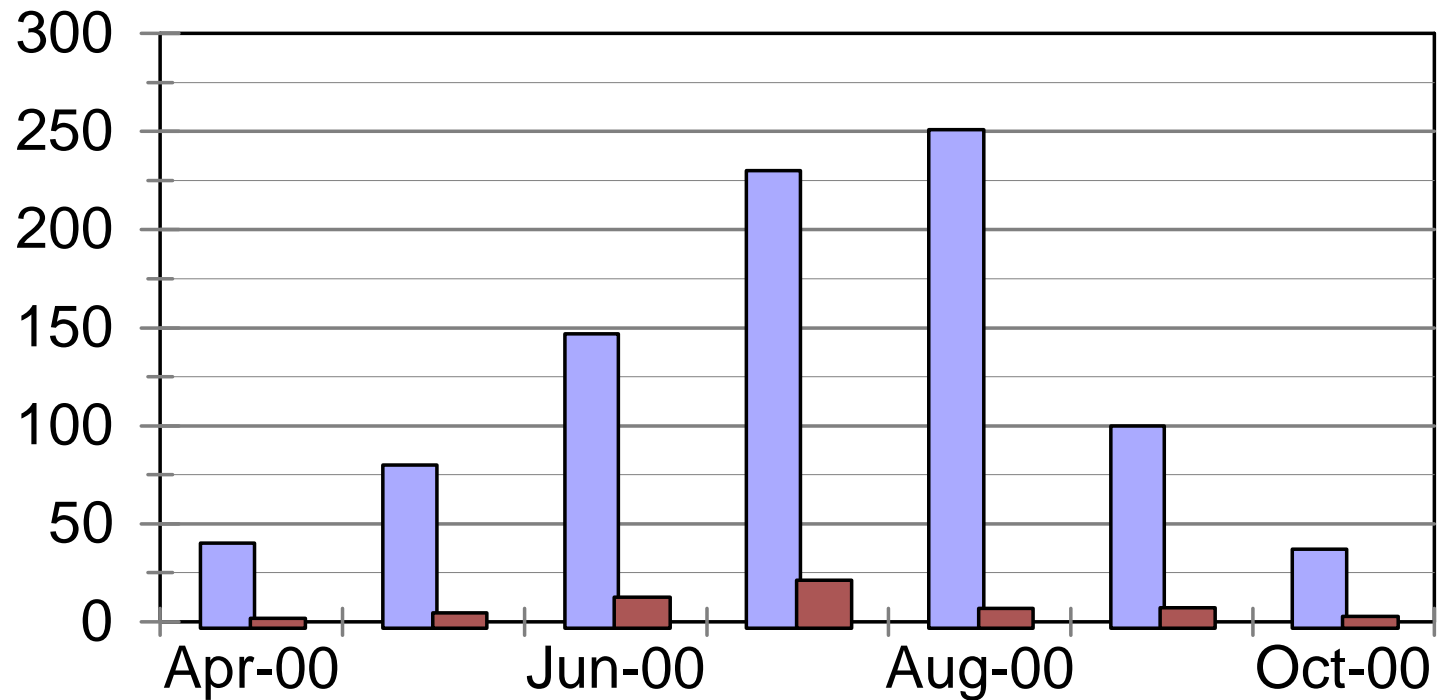


# SCHEMATIC A



# State Park Flows

gals/minute



# Water Supply System

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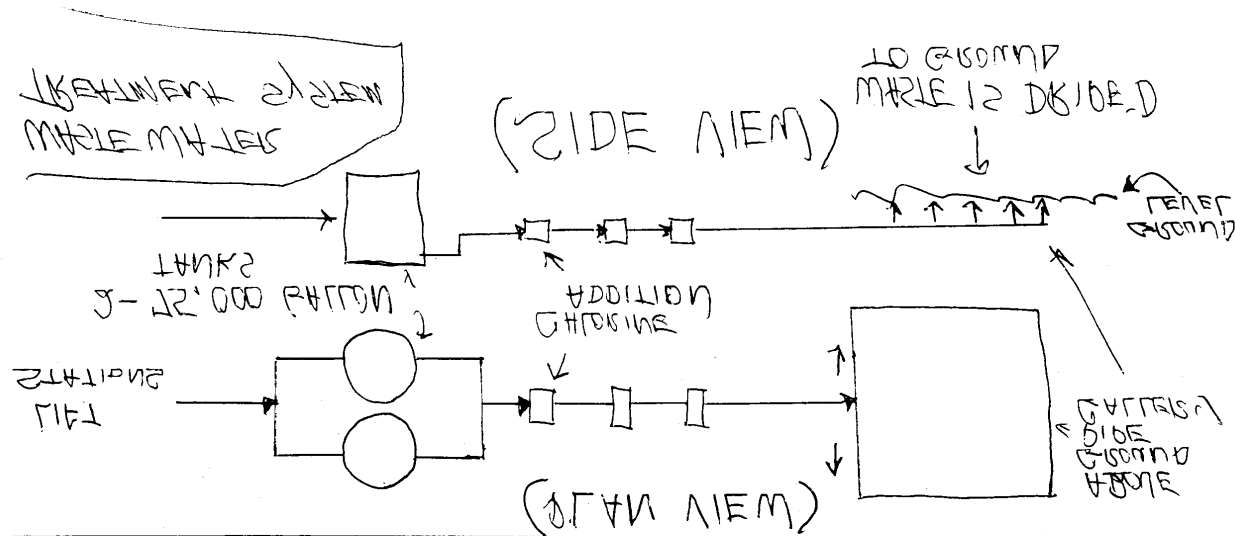
- P The park currently operates a transient-non-community public water supply
- P On March 27, 2000, IDEM made a preliminary determination that this was a high risk system for ground water under the direct influence of surface water



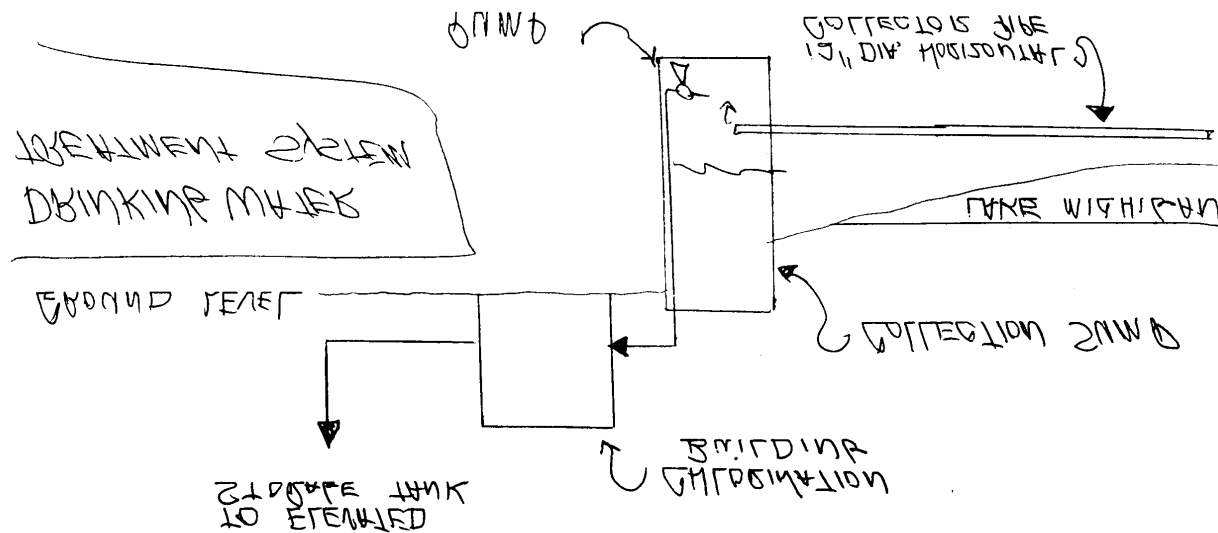
## State Park Raw Water Supply Tests

| SAMPLE DATE | POSITIVE TEST FOR<br>TOTAL COLIFORM | E. COLI |
|-------------|-------------------------------------|---------|
| 7/5/00      | X                                   | X       |
| 7/12/00     | X                                   | X       |
| 7/19/00     | X                                   | -       |
| 7/26/00     | X                                   | -       |
| 8/3/00      | X                                   | -       |
| 8/9/00      | X                                   | -       |
| 8/30/00     | X                                   | -       |
| 9/6/00      | X                                   | -       |
| 9/13/00     | X                                   | -       |
| 9/20/00     | X                                   | -       |
| 10/4/00     | X                                   | X       |
| 10/11/00    | X                                   | X       |
| 10/18/00    | X                                   | X       |
| 10/25/00    | X                                   | -       |
| 11/1/00     | X                                   | -       |
| 11/8/00     | X                                   | -       |
| 11/16/00    | X                                   | X       |
| 11/21/00    | X                                   | X       |
| 11/30/00    | X                                   | X       |

# SCHEMATIC B



# SCHEMATIC A



# Privies as a Potential Source of Contamination

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## Other Potential Sources of Contamination

Storm water from parkinglots and roofs

Cross connections between sanitary & storm water sewers

Upstream septics

# Conclusions:

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Site assessments should evaluate

- P Sewers

- P Waste water handling in the park

- P Storm Water Management

- P Wildlife

- P Upstream Contributors

- P Water Supply

# Indiana Dunes State Park

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- P Currently operating under a bottled water directive
- P Plans to eliminate waste water plant and connect to municipal system